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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,674	11/04/2003	Atsushi Ayabe	244846US2	6480

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EXAMINER	
TO, TUAN C	

ART UNIT	PAPER NUMBER
3663	

DATE MAILED: 07/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/699,674	AYABE ET AL.	
	Examiner	Art Unit	
	Tuan C To	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *2,8 and 11* is/are allowed.

6)☒ Claim(s) *1, 3, 7, 9, 10, and 12* is/are rejected.

7)☒ Claim(s) *4-6, and 13-15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/04/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 7, 9, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takatori et al. (U.S. 20020175036A1) and in view of Ito et al. (U.S. 20030045400A1).

Claim 1:

With respect to claim 1, the U.S. reference No. '036A1 to Takatori et al. has been cited as teaching a lockup control device for a torque converter of automatic transmission, comprising a torque converter provided with a lockup clutch (Takatori et al., page 1, paragraph [0010]; Figure 1, torque converter 3, lockup clutch 4), a transmission controller (20) controls the transmission (2) similarity as the controller recited by the applicant. Takatori et al. clearly teach the limitation "a controller that controls, while the vehicle is coasting in a fuel-cut state, an oil pressure of the lockup clutch through a feedback control using a hydraulic device so that a slip rotation speed of the lockup clutch matches a target slip rotation speed" (see Takatori et al., page 3, paragraph [0053] through paragraph [0059]; figure 5B)

Takatori et al. do not disclose the following: "the controller is adapted to calculate the slip rotation speed of the lockup clutch, and control the hydraulic device so that the oil pressure of the lockup clutch becomes constant if the slip rotation speed calculated is greater than a predetermined rotation speed during a downshift of the automatic transmission".

The secondary reference to Ito et al. overcomes the missing features from Takatori et al. Ito et al. by disclosing another lockup control device for a torque converter of an automatic transmission, in which the electronic control unit (42) control the lockup clutch (32) during the fuel-cut state in such a way that the oil pressure of the lockup clutch become constant if the slip rotation speed calculated is greater than a predetermined slip amount during a downshift of the automatic transmission (Ito et al, figure 6; page 6, paragraph [0052] and paragraph [0053]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Takatori et al. to include the teachings as taught by Ito et al. so that whether the shifting is downshifting at the time of coasting, a hydraulic pressure can be obtained for preventing the decrease in the turbine speed and the engine speed due to the neutral state of the automatic transmission.

Claim 3:

With respect to claim 3, the U.S. reference No. '036A1 to Takatori et al. has been cited as teaching a lockup control device for a torque converter of automatic transmission, comprising a torque converter provided with a lockup clutch (Takatori et al., page 1, paragraph [0010]; Figure 1, torque converter 3, lockup clutch 4), a transmission controller (20) controls the transmission (2) similarity as the controller recited by the applicant. Takatori et al. clearly teach the limitation "a controller that controls, while the vehicle is coasting in a fuel-cut state, an oil pressure of the lockup clutch through a feedback control using a hydraulic device so that a slip rotation speed of the lockup clutch matches a target slip rotation speed" (see Takatori et al., page 3, paragraph [0053] through paragraph [0059]; figure 5B)

Takatori et al. do not disclose the following: "the controller is adapted to calculate the slip rotation speed of the lockup clutch, and set the calculated slip rotation speed as the target slip rotation speed if a downshift of the automatic transmission is executed."

The secondary reference to Ito et al. has been cited as teaching that during the downshift in stage 1, the electronic control apparatus (42) (Ito et al., figure 6; page 6,

paragraphs [00510 and [[0052]) controls the slip amount of the lockup clutch (32) to a predetermined target slip amount.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Takatori et al. to include the teachings as taught by Ito et al. so that during a lockup time, slip rotation speed is control in such a way that an actual slip rotation speed value is brought to a target slip rotation value, therefore a possible torque fluctuation and noise may not be generated.

Claim 7:

With respect to claim 7, the U.S. reference No. '036A1 to Takatori et al. has been cited as teaching a lockup control device for a torque converter of automatic transmission, comprising a torque converter provided with a lockup clutch (Takatori et al., page 1, paragraph [0010]; Figure 1, torque converter 3, lockup clutch 4), a transmission controller (20) controls the transmission (2) similarity as the controller recited by the applicant. Takatori et al. clearly teach the limitation "a controller that controls, while the vehicle is coasting in a fuel-cut state, an oil pressure of the lockup clutch through a feedback control using a hydraulic device so that a slip rotation speed of the lockup clutch matches a target slip rotation speed" (see Takatori et al., page 3, paragraph [0053] through paragraph [0059]; figure 5B)

Takatori et al. do not disclose the following: "the controller is adapted to calculate the slip rotation speed of the lockup clutch, and control the hydraulic device so that the oil pressure of the lockup clutch becomes constant if the slip rotation speed calculated

is greater than a predetermined rotation speed during a downshift of the automatic transmission".

The secondary reference to Ito et al. overcomes the missing features from Takatori et al. Ito et al. by disclosing another lockup control device for a torque converter of an automatic transmission, in which the electronic control unit (42) control the lockup clutch (32) during the fuel-cut state in such a way that the oil pressure of the lockup clutch become constant if the slip rotation speed calculated is greater than a predetermined slip amount during a downshift of the automatic transmission (Ito et al, figure 6; page 6, paragraph [0052] and paragraph [0053]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Takatori et al. to include the teachings as taught by Ito et al. so that whether the shifting is downshifting at the time of coasting, a hydraulic pressure can be obtained for preventing the decrease in the turbine speed and the engine speed due to the neutral state of the automatic transmission.

Claim 9:

With respect to claim 9, the U.S. reference No. '036A1 to Takatori et al. has been cited as teaching a lockup control device for a torque converter of automatic transmission, comprising a torque converter provided with a lockup clutch (Takatori et al., page 1, paragraph [0010]; Figure 1, torque converter 3, lockup clutch 4), a transmission controller (20) controls the transmission (2) similarity as the controller recited by the applicant. Takatori et al. clearly teach the limitation "a controller that controls, while the vehicle is coasting in a fuel-cut state, an oil pressure of the lockup

clutch through a feedback control using a hydraulic device so that a slip rotation speed of the lockup clutch matches a target slip rotation speed" (see Takatori et al., page 3, paragraph [0053] through paragraph [0059]; figure 5B)

Takatori et al. do not disclose the following: "the controller is adapted to calculate the slip rotation speed of the lockup clutch, and set the calculated slip rotation speed as the target slip rotation speed if a downshift of the automatic transmission is executed."

The secondary reference to Ito et al. has been cited as teaching that during the downshift in stage 1, the electronic control apparatus (42) (Ito et al., figure 6; page 6, paragraphs [00510 and [[0052]) controls the slip amount of the lockup clutch (32) to a predetermined target slip amount.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Takatori et al. to include the teachings as taught by Ito et al. so that during a lockup time, slip rotation speed is control in such a way that an actual slip rotation speed value is brought to a target slip rotation value, therefore a possible torque fluctuation and noise may not be generated.

Claim 10:

With respect to claim 10, the U.S. reference No. '036A1 to Takatori et al. has been cited as teaching a lockup control device for a torque converter of automatic transmission, comprising a torque converter provided with a lockup clutch (Takatori et al., page 1, paragraph [0010]; Figure 1, torque converter 3, lockup clutch 4), a transmission controller (20) controls the transmission (2) similarity as the controller recited by the applicant. Takatori et al. clearly teach the limitation "a controller that

controls, while the vehicle is coasting in a fuel-cut state, an oil pressure of the lockup clutch through a feedback control using a hydraulic device so that a slip rotation speed of the lockup clutch matches a target slip rotation speed" (see Takatori et al., page 3, paragraph [0053] through paragraph [0059]; figure 5B)

Takatori et al. do not disclose the following: "the controller is adapted to calculate the slip rotation speed of the lockup clutch, and control the hydraulic device so that the oil pressure of the lockup clutch becomes constant if the slip rotation speed calculated is greater than a predetermined rotation speed during a downshift of the automatic transmission".

The secondary reference to Ito et al. overcomes the missing features from Takatori et al. Ito et al. by disclosing another lockup control device for a torque converter of an automatic transmission, in which the electronic control unit (42) control the lockup clutch (32) during the fuel-cut state in such a way that the oil pressure of the lockup clutch become constant if the slip rotation speed calculated is greater than a predetermined slip amount during a downshift of the automatic transmission (Ito et al, figure 6; page 6, paragraph [0052] and paragraph [0053]).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Takatori et al. to include the teachings as taught by Ito et al. so that whether the shifting is downshifting at the time of coasting, a hydraulic pressure can be obtained for preventing the decrease in the turbine speed and the engine speed due to the neutral state of the automatic transmission.

Claim 12:

With respect to claim 12, the U.S. reference No. '036A1 to Takatori et al. has been cited as teaching a lockup control device for a torque converter of automatic transmission, comprising a torque converter provided with a lockup clutch (Takatori et al., page 1, paragraph [0010]; Figure 1, torque converter 3, lockup clutch 4), a transmission controller (20) controls the transmission (2) similarity as the controller recited by the applicant. Takatori et al. clearly teach the limitation "a controller that controls, while the vehicle is coasting in a fuel-cut state, an oil pressure of the lockup clutch through a feedback control using a hydraulic device so that a slip rotation speed of the lockup clutch matches a target slip rotation speed" (see Takatori et al., page 3, paragraph [0053] through paragraph [0059]; figure 5B)

Takatori et al. do not disclose the following: "the controller is adapted to calculate the slip rotation speed of the lockup clutch, and set the calculated slip rotation speed as the target slip rotation speed if a downshift of the automatic transmission is executed."

The secondary reference to Ito et al. has been cited as teaching that during the downshift in stage 1, the electronic control apparatus (42) (Ito et al., figure 6; page 6, paragraphs [00510 and [[0052]) controls the slip amount of the lockup clutch (32) to a predetermined target slip amount.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Takatori et al. to include the teachings as taught by Ito et al. so that during a lockup time, slip rotation speed is control in such a

way that an actual slip rotation speed value is brought to a target slip rotation value, therefore a possible torque fluctuation and noise may not be generated.

Allowable Subject Matter

The examiner has carefully searched a plurality of areas that are relevant to the the teachings of automatic transmission, specifically the teaching of an automatic transmission system for a vehicle comprising a controller, which is adapted to execute an oil pressure fixing control of fixing the oil pressure of the lockup clutch if a downshift of the automatic transmission is executed, and the controller is further adapted to calculate the slip rotation speed of the lockup clutch, and stop the oil pressure fixing control if the slip rotation speed calculated is less than a predetermined rotation speed while the oil pressure fixing control is being executed. However, none of the references, either alone or in a combination, teaches or fairly suggests such the features as claimed. Therefore, claims 2, 8, and 11 are set in a condition for allowance.

Also, none of the references of record teaches the limitations as recited in claims 4-6, and 13-15. Thus, they are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusions

The prior art made of record, which are listed in PTO-892, and not relied upon are considered pertinent to applicant's disclosure includes the following: Segawa et al.'s, and Sato et al.'s.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan C To whose telephone number is (703) 308-6273. The examiner can normally be reached on from 8:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (703) 305-8233.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Patent Examiner,

Tuan C To

Date: July 12, 2004